REMARKS

The following remarks are made in response to the Office Action mailed July 13, 2007. Claims 27 and 28 have been withdrawn from consideration and claims 1-8, 12-10, 21, 23, and 25 have been canceled without prejudice. In the Office Action, claims 9-11, and 21-26 were rejected. With this Response, claims 9-11, 22, 24, and 26 have been amended and new claims 29-35 have been added. Claims 9-11, 22, 24, 26, and 29-35 are pending in the application and are presented for reconsideration and allowance.

Restriction Requirements and Species Elections

In submitting this Response, Applicants are cognizant of the many Restriction Requirements in this application. In amending the claims, such as independent claim 9, Applicants' have taken care to include limitations that appeared in the dependent claims within the elected Group. Accordingly, to the extent that the subject matter of amended independent claim 9 includes subject matter in common with non-elected independent claim 1, any overlap is merely the consequence of Applicants combining elected dependent claims (e.g. claim 21) with elected independent claim 9. Accordingly, Applicants respectfully request consideration of amended independent claim 9 and its dependent claims, as these claims are within the scope of the limitations of the elected claims.

Claim Rejections under 35 U.S.C. § 102

In the Office Action, claim 10 was rejected under 35 U.S.C. 102(e) as being anticipated by Larson et al. US Patent 6,559,733 (the Larson Patent).

Applicants' independent claim 10 specifies a power transmission connector comprising means for transmitting power directly from a power supply to a 64-bit central processing unit independent from a printed circuit board on which the 64-bit central processing unit is mounted, the means for transmitting power including means for distributing the power between a plurality of ground planes and a plurality of power planes arranged for minimizing an inductance loop between the power supply and the 64-bit central processing unit.

The Larson Patent teaches away from a means for transmitting power from a power supply to a central processing unit independent from a printed circuit board on which the 64-bit central processing unit is mounted, as recited in Applicants' independent claim 10.

In particular, the Larson Patent emphasizes providing termination circuits in place of removed processors. See Column 3, lines 15-21. In particular, "board 400 operates as a low cost, removable termination in processor systems, e.g., system 100. Using the construction of board 400 as a terminator eliminates most transient noise and reflections **from the end of a processor removed from a system 100**. (emphasis added). Consequently, the Larson Patent teaches the use of board 400 (and its arranged power planes and ground planes as illustrated in Figures 4A and 7) in the express absence of a processor, whereas Applicants' independent claim 10 provides for the express inclusion of a 64-bit central processing unit by specifying a means for transmitting power from a power supply **to a 64-bit central processing unit**. Thus, the Larson Patent teaches away from Applicants' independent claim 10.

Moreover, because the Larson Patent teaches that the "terminator" or "termination circuit" that acts in place of a processor resides **within** a printed circuit board 400, the Larson Patent teaches away from the claim limitation of the means for transmitting power being **independent from** a printed circuit board on which the 64-bit central processing unit is mounted, as recited in Applicants' independent claim 10.

In particular, as noted in the Office Action, Figure 7 of the Larson Patent shows a board 400 including various power and ground planes. As noted in the Brief Description of the Drawings, Figure 7 shows the board of Figure 4A. See Column 2, line 58. Accordingly, as described in association with Figure 4A, board 400 is a printed circuit board including vias (such as ground vias 405, power vias 275, and signal via 265), power planes (such as power planes 410P1, 410P2, 410P3), and ground planes (such as ground planes 410G1 and 410G2). See Column 4, lines 22-39 and Column 3, lines 35-40 (Figure 2B). As illustrated in Figures 4A and 7, the ground planes (410G1, 410G2) and the power planes (410P1, 410P2, 410P3) **extend within** the printed circuit board 400. In addition, in the Larson Patent, the arrangements of the ground planes (410G1, 410G2), power planes (410P1, 410P2, 410P3), and vias (e.g., 275, 405) extend within printed circuit board 400 to form capacitors within board 400. See Column 4, lines 41-59.

Accordingly, the Larson Patent teaches away from the claim limitation of the means for transmitting power being independent from a printed circuit board on which the 64-bit central processing unit is mounted, as recited in Applicants' independent claim 10.

In addition, because the Larson Patent provides its printed circuit board 400 as a termination circuit in place of a processor, the Larson Patent fails to teach or suggest a means for distributing the power between a plurality of ground planes and power planes arranged for minimizing an inductance loop between the power supply and the 64-bit central processing unit, as recited in Applicants' independent claim 10. Rather, the Larson Patent focuses on impedances related to the removal of a processor instead of the inclusion of a 64-bit central processing unit.

Finally, because the Larson Patent teaches away from the inclusion of a processor in association with the arrangement of power planes and ground planes within printed circuit board 400, the Larson Patent necessarily fails to address Applicants' central processing unit being a 64-bit central processing unit and why Applicants' means for transmitting power is advantageous to the performance of a 64-bit central processing unit, as opposed to any generic processor.

For at least these reasons, the Larson Patent fails to meet all the limitations of Applicants' independent claim 10 and therefore, Applicants respectfully submit Applicants' amended independent claim 10 is patentable over the Larson Patent.

In light of the above, Applicants respectfully request withdrawal of the rejection of claim 10 based on 35 U.S.C. §102.

Claim Rejections under 35 U.S.C. § 103

In the Office Action, claims 9 and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Bousman US Patent 5,083,238 (the Bousman Patent) in view of the Larson Patent.

Applicants note that independent claim 9, as amended, positively recites a power supply and a central processing unit, including the electrical connection of the respective first and second ends of the flexible circuitry connector to the power supply and the central processing unit, respectively. Accordingly, Applicants respectfully submit that amended independent claim 9 obviates the portion of the rejection regarding the use of the term “for.”

Applicants’ independent claim 9 provides a power transmission system comprising a printed circuit board including a central processing unit, a power supply, and a flexible circuitry connector. The power supply is spaced apart from and located remotely from the central processing unit. The flexible circuitry connector extends between the power supply and the central processing unit with the flexible circuitry connector comprising a first end electrical connected to the central processing unit and a second end electrical connected to the power supply. The flexible circuitry connector has a length to maintain a distance between the first end and the second end of the flexible circuitry connector to maintain the power supply to be remotely located relative to the central processing unit. The flexible circuitry connector is also physically spaced apart from and electrically independent of the printed circuit board. The flexible circuitry connector comprises a plurality of stacked layers arranged generally parallel to each other, wherein each respective stacked layer includes a plurality of ground layers, at least one power layer, and at least one signal layer. The at least one power layer is interposed between at least two of the plurality of ground layers and the at least one signal layer is separated from the at least one power layer by at least one of the respective ground layers and the at least one signal layer extends generally parallel to the respective ground layers and the at least one power layer.

As admitted in the Office Action, the Bousman Patent does not disclose “at least one power layer and the at least one power layer interposed between at two of the plurality of ground layers”, as recited in Applicants’ independent claim 9.

In addition, while the Bousman Patent teaches interconnecting circuit boards via a cable (see Column 1, lines 46-47 and Column 4, lines 38-42 and Figure 4), the Bousman Patent fails to teach a flexible circuitry connector electrically connected to, and extending between, a power supply and a central processing unit with a first end of the flexible circuitry connector electrically connected to the central processing unit and a second end of the flexible circuitry connector electrically connected to the power supply, as recited in Applicants’ independent claim 9.

The Larson Patent fails to cure the deficiencies of the Bousman Patent. In particular, the Larson Patent teaches away from the claim limitation of a flexible circuitry connector as recited in Applicants' independent claim 9 because the Larson Patent discloses a printed circuit board carrying several power planes and ground planes **within the printed circuit board** for connecting a power source and a circuit.

In particular, as noted in the Office Action, Figure 7 of the Larson Patent shows a board 400 including various power and ground planes. As noted in the Brief Description of the Drawings, Figure 7 shows the board of Figure 4A. See Column 2, line 58. Accordingly, as described in association with Figure 4A, board 400 is a printed circuit board including vias (such as ground vias 405, power vias 275, and signal via 265), power planes (such as power planes 410P1, 410P2, 410P3), and ground planes (such as ground planes 410G1 and 410G2). See Column 4, lines 22-39 and Column 3, lines 35-40 (Figure 2B). As illustrated in Figures 4A and 7, the ground planes (410G1, 410G2) and the power planes (410P1, 410P2, 410P3) **extend within** the printed circuit board 400. In addition, signal via 265, power via 275, and ground via 265 extend vertically through board 400 in an orientation perpendicular to the ground planes (410G1 and 410G2) and to the power planes (410P1, 410P2, 410P3) of the printed circuit board 400. In addition, in the Larson Patent, the arrangements of the ground planes (410G1, 410G2), power planes (410P1, 410P2, 410P3), and vias (e.g., 275, 405) extend within printed circuit board 400 to form capacitors within board 400. See Column 4, lines 41-59.

In contrast, the arrangement of Applicants' independent claim 9 frees up space within its printed circuit board by providing the respective ground layers, at least one power layer, and at least one signal layer within a flexible circuitry connector that **is physically spaced apart from, and electrically independent from, a printed circuit board**. Accordingly, the Larson Patent teaches away from Applicants' independent claim 9.

In further contrast to the Larson Patent, Applicants' independent claim 9 specifies the at least one power layer is interposed between at least two of the plurality of ground layers and **the at least one signal layer is separated from the at least one power layer by at least one of the respective ground layers** and **the at least one signal layer extends generally parallel to the respective ground layers and the at least one power layer**. Instead, in the Larson Patent, the signal via 265 extends generally perpendicular to the ground planes (410G1, 410G2) and the power planes (410P1, 410P2, 410P3) and extends vertically through the printed circuit board 400, as illustrated in Figure 4A and 7.

Moreover, one skilled in the art using would not combine the Larson Patent with the Bousman Patent because the Larson Patent emphasizes providing termination circuits in place of removed processors. See Column 3, lines 15-21. In particular, "board 400 operates as a low cost, removable termination in processor systems, e.g., system 100. Using the construction of board 400 as a terminator eliminates most transient noise and reflections **from the end of a processor removed from a system 100**. (emphasis added). Consequently, the Larson Patent teaches the use of board 400 (and its arranged power planes and ground planes) in the express absence of a processor, whereas Applicants' independent claim 9 provides for the express inclusion of a central processing unit and specifies electrical connection of the first end of its flexible circuitry connector to a central processing unit. Thus, the Larson Patent teaches directly away from Applicants' independent claim 9.

Accordingly, one skilled in the art in using their common sense would not have looked to the Larson Patent, and even if they did, would have been steered away from its arrangements that are directed a completely different problem of providing termination circuitry within a printed circuit board to deal with a lack of a processor (the Larson Patent) instead of Applicants' challenge of electrically connecting a power supply **to** a central processing unit **independent of** a printed circuit board.

Because the Bousman Patent does not address these issues, the Bousman cannot help the deficiencies of the Larson Patent regarding the flexible circuitry connector Applicants' independent claim 9.

For at least these reasons, one cannot combine the Bousman Patent and the Larson Patent to arrive at Applicants' independent claim 9 and therefore, Applicants respectfully submit that the Bousman Patent and the Larson Patent fail to teach, suggest, or reasonably make obvious Applicants' amended independent claim 9.

Applicants further note that to the extent that Applicants' independent claim 9, as amended, incorporates portions of limitations from dependent claim 21, Applicants will address Renfro U.S. Patent Publication 2006/0040523 (the Renfro Publication) in connection with independent claim 9. As illustrated in Figure 5, the Renfro Publication teaches a chip-to-chip coupling system 500 in which a generic cable 310 (see Paragraph 28) couples a chip 508 (such as a CPU) to a chipset 504 via connector 308.

Accordingly, like the Larson Patent and the Bousman Patent, the Renfro Publication fails to teach or suggest a flexible circuitry connector extending between a central processing unit and a power supply, including a first end of the flexible circuitry connector electrically connected to the central processing unit, and a second end of the flexible circuitry connector electrically connected to the power supply, as recited in Applicants' independent claim 9. Moreover, the Renfro Publication does not cure other deficiencies of the Larson Patent and the Bousman Patent regarding Applicants' independent claim 9.

For at least these reasons, one cannot combine the Bousman Patent, the Larson Patent, and the Renfro Publication to arrive at Applicants' independent claim 9 and therefore, Applicants respectfully submit that the Bousman Patent, the Larson Patent, and the Renfro Publication fail to teach, suggest, or reasonably make obvious Applicants' amended independent claim 9. Dependent claim 26 is also believed to be allowable as it further defines patentably distinct independent claim 9.

In the Office Action, claims 21-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Bousman Patent in view of the Larson Patent as applied to claim 9 above, and further in view of Renfro US Patent Publication 2006/0040523 (the Renfro Publication).

Applicant has canceled claims 21, 23, and 25. Applicants' claim 24 is believed to be allowable as it further defines patentably distinct independent claim 9.

Applicants' dependent claim 22 specifies that the central processing unit comprises **a 64 bit central processing unit** and that the printed circuit board comprises a first printed circuit board, wherein the power transmission system further comprises a second printed circuit board mounted on the first printed circuit board with the power supply mounted on the first printed circuit board and the central processing unit mounted on the second printed circuit board.

Applicants' claim 22 is believed to be allowable as it further defines patentably distinct independent claim 9. In addition, none of the Larson Patent, the Bousman Patent, and the Renfro Publication address a 64-bit central processing unit, and its attendant stringent power and current requirements, which are met by the flexible circuitry connector of Applicants' dependent claim 22 (and base independent claim 9), which provides electrical connection between the 64-bit central processing unit and its power supply while maintaining the power supply at a remote location relative to the 64-bit central processing unit.

For at least these reasons, one cannot combine the Bousman Patent, the Larson Patent, and the Renfro Publication to arrive at Applicants' claim 22 and therefore, Applicants respectfully submit that the Bousman Patent, the Larson Patent, and the Renfro Publication fail to teach, suggest, or reasonably make obvious Applicants' amended claim 22.

In the Office Action, claim 11 was rejected under 35 U.S.C. 103(a) as being unpatentable over the Larson Patent in view of the Renfro Publication.

Applicants' claim 11 is believed to be allowable as it further defines patentably distinct independent claim 10. In addition, for substantially the same reasons presented for the patentability of independent claim 9, Applicants respectfully submit that the Larson Patent and the Renfro Publication fail to teach, suggest, or reasonably make obvious Applicants' dependent claim 11 (and its base independent claim 10).

In light of the above, Applicants respectfully request withdrawal of the rejection of claims 9, 11, 22, 24, and 26 based on 35 U.S.C. §103.

New Claims

Applicants submit new claims 29-35 and respectfully submit that claims 29-35 are patentable over the Larson Patent, the Bousman Patent, and the Renfro Publication for substantially the same reasons presented for the patentability of claims 9-11, 22, 24, and 26. Accordingly, allowance of new claims 29-35 is respectfully requested.

CONCLUSION

In view of the above, Applicants respectfully submit that pending claims 9-11, 22, 24, 26, and 29-35 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 9-11, 22, 24, 26, and 29-35 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 08-2025.

The Examiner is invited to contact the Applicants' representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either David A. Plettner at Telephone No. (408) 447-3013, Facsimile No. (408) 447-0854 or Paul S. Grunzweig at Telephone No. (612) 767-2504, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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